

a second vacuum chamber;

a laser processing apparatus comprising a laser processing chamber and a laser for irradiating the exposed surface of said semiconductor layer with a laser light in said laser processing chamber after said etching, said laser processing chamber connected to said etching apparatus through said second vacuum chamber; and

a mechanism for transporting said substrate from said ion introducing apparatus to said laser processing chamber without exposing said substrate to the air,

said dopant impurity being made a plasma around a grid electrode of said ion introducing apparatus and being accelerated toward said semiconductor layer by a voltage applied to an anode electrode of said ion introducing apparatus.

KJ 56. (Amended) An apparatus for processing a semiconductor comprising:

a first vacuum chamber;

an ion introducing apparatus for doping a semiconductor layer formed over a substrate with a dopant impurity through an insulating film comprising oxide provided over said semiconductor layer;

an etching apparatus for etching said insulating film comprising oxide to expose a surface of said semiconductor layer, said etching apparatus connected to said ion introducing apparatus through said first vacuum chamber;

a second vacuum chamber;

a laser processing apparatus comprising a laser processing chamber and a laser for irradiating the exposed surface of said semiconductor layer with a rectangular shaped laser light in said laser processing chamber after said etching, said laser processing chamber connected to said etching apparatus through said second vacuum chamber; and

a mechanism for transporting said substrate from said ion introducing apparatus to said laser processing chamber without exposing said substrate to the air,

said rectangular-shaped laser light has a length greater than a width of said substrate,

said dopant impurity being made a plasma around a grid electrode of said ion introducing apparatus and being accelerated toward said semiconductor layer by a voltage applied to an anode electrode of said ion introducing apparatus.

174.

(Amended) An apparatus for forming a semiconductor device comprising:
a first vacuum chamber;

an ion introducing apparatus for doping a semiconductor layer formed over a substrate with a dopant impurity through an insulating film comprising oxide provided over said semiconductor layer;

an etching apparatus for etching said insulating film comprising oxide to expose a surface of said semiconductor layer, said etching apparatus connected to said ion introducing apparatus through said first vacuum chamber;

a second vacuum chamber;

a laser processing apparatus comprising a laser processing chamber and a laser for irradiating the exposed surface of said semiconductor layer with a laser light in said laser processing chamber after said etching, said laser processing chamber connected to said etching apparatus through said second vacuum chamber; and

a mechanism for transporting said substrate from said ion introducing apparatus to said laser processing chamber without exposing said substrate to the air,

said dopant impurity being made a plasma around a grid electrode of said ion introducing apparatus and being accelerated toward said semiconductor layer by a voltage applied to an anode electrode of said ion introducing apparatus.

175.

(Amended) An apparatus for processing a semiconductor comprising:
a first vacuum chamber;

an ion introducing apparatus for doping a semiconductor layer formed over a substrate with a dopant impurity through an insulating film comprising oxide provided over said semiconductor layer;

an etching apparatus for etching said insulating film comprising oxide to expose a surface of said semiconductor layer, said etching apparatus connected to said ion introducing apparatus through said first vacuum chamber;

a second vacuum chamber;

a light processing apparatus comprising a light processing chamber and a light source chamber for irradiating the exposed surface of said semiconductor layer with

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an infrared light in said light processing chamber after said etching, said light processing chamber connected to said etching apparatus through said second vacuum chamber; and

a mechanism for transporting said substrate from said ion introducing apparatus to said light processing chamber without exposing said substrate to the air,

said dopant impurity being made a plasma around a grid electrode of said ion introducing apparatus and being accelerated toward said semiconductor layer by a voltage applied to an anode electrode of said ion introducing apparatus.
